

E2 202 Random Processes

Term: August 2026

Instructors: Rajesh Sundaresan

Lecture Plan

(Note: This is tentative. The actual sequence is slower, and the last few topics are often not covered.)

Lec.	Date	Topic	Instructor
1	04 August 2026	1.1 Introduction, axioms of probability	RS
2	06 August 2026	1.1.1 Continuity of probability	RS
3	11 August 2026	1.2 Random variables	RS
4	13 August 2026	1.2.1 Cumulative distribution functions	RS
5	18 August 2026	1.2.2 Independence	RS
6	20 August 2026	1.2.3 Expectation	RS
7	25 August 2026	Densities, change of variables, examples	RS
8	27 August 2026	1.3 Random processes	RS
9	01 September 2026	1.3.1 Finite-dimensional distributions	RS
10	03 September 2026	1.4 Convergence of random sequences	RS
11	08 September 2026	1.5 Laws of large numbers	RS
12	10 September 2026	Central limit theorem	RS
13	15 September 2026	2.1 and 2.2 Conditional Ind. and Markov property	RS
14	17 September 2026	2.3 Strong Markov property	RS
15	22 September 2026	2.4 Hitting times and recurrence	RS
16	24 September 2026	2.5 Communicating classes and class properties	RS
17	29 September 2026	2.6 Positive recurrence and invariant measure	RS
18	01 October 2026	2.7 and 2.8 Transience, theorems, examples	RS
19	06 October 2026	2.9 Mean Drift Criteria	RS
20	08 October 2026	3.1 and 3.2 Renewal processes, Elem. Renewal Theorem	RS
21	13 October 2026	3.3 Renewal Reward Processes	RS
22	15 October 2026	3.4 The Poisson Process	RS
	20 October 2026	Holiday (Dussehra)	
23	22 October 2026	3.4 The Poisson Process (continued)	RS
24	27 October 2026	4.1 and 4.2 Transition Prob. Functions, Sojourn times	RS
25	29 October 2026	4.3 Structure of a Pure Jump CTMC	RS
26	03 November 2026	4.4 Regular CTMC	RS
27	05 November 2026	4.5 and 4.6 Communicating Classes, Recurrence	RS
28	10 November 2026	4.6 Recurrence and Positivity	RS
29	12 November 2026	4.7 Birth Death Processes	RS
30	17 November 2026	4.8 Forward and Backward Equations	RS